



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/669,697	09/25/2003	Hsin-Chu Liu	Q77564	4444
23373	7590	08/19/2005	EXAMINER	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			KUHN, ALLAN R	
			ART UNIT	PAPER NUMBER
			1732	

DATE MAILED: 08/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/669,697

Applicant(s)

LIU ET AL.

Examiner

Allan Kuhns

Art Unit

1732

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

1.The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 4-6 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Perman et al. (5,670,102). Perman et al. disclose the claimed method of manufacturing polymeric foam using supercritical fluids including (1) placing a foamable polymeric material into a mold (column 10, lines 47-49), (2) introducing a supercritical fluid through the mold at a first temperature and a first pressure for a time period sufficient to impregnate the polymeric material, and (3) changing the first temperature and the first pressure to a second temperature and a second pressure (column 9, lines 27-37) sufficient to produce polymeric foam having microcells (column 2, line 61).

Perman et al. teach the use of a supercritical gas, as in claim 4, and the use of carbon dioxide, as in claim 5, at column 8, line 34. Perman et al. also teach the use of thermoplastics, as in claim 6, and forming a microcellular foam, as in claim 18.

2.The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3.Claims 2, 3 and 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Perman et al. (5,670,1020). It would have been obvious to one of

Art Unit: 1732

ordinary skill in the art to fill or partially fill a mold, as in claims 15 and 16, when practicing the process of Perman et al., based on the discussion at column 10, lines 42-49, in order to produce a foam of desired density. The examiner takes Official Notice that it is known to form foams with supercritical fluids using an injection molding machine, as in claim 3, which is a form of compression molding, as in claim 2, and also to provide temperature adjustability in a mold, as in claim 17.

4. Claims 7-10 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Perman et al. as applied to claims 2, 3 and 15-17 above, and further in view of Sugihara et al. (6,773,640). Sugihara et al. teach the aspect of including a chemical foaming agent and crosslinking agent with a polymer in a process of using supercritical fluid to produce a foam, at column 14, lines 21-41 and column 15, lines 32-49. It would have been obvious to one of ordinary skill in the art to incorporate these agents in the polymer material of Perman et al. in order to provide for nucleation and crosslinking.

5. Claims 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Perman et al. as applied to claims 2, 3 and 15-17 above, and further in view of Thomas et al. (6,723, 761). Thomas et al. teach the aspect of using a shaped foamable article for impregnation at column 5, lines 31-37. It would have been obvious to one of ordinary skill in the art to incorporate this aspect into the method of Perman et al. in order to enable the article to retain its shape during the foaming process, as set forth by Thomas et al. at column 3, lines 44-47. The examiner takes Official Notice the the shapes and condition of claims 12-14 are known.

Art Unit: 1732

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allan Kuhns whose telephone number is (571) 272-1202. The examiner can normally be reached on Monday to Thursday from 7:00 to 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Colaianni, can be reached on (571) 272-1196. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Allan R. Kuhns

ALLAN R. KUHNS
PRIMARY EXAMINER AU 1732

8-16-05